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11 March 1981

Worldwide Report

TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

No. 152

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BRIEFS

'PTI,' 'VNA' AGREEMENT--The Press Trust of India [PTI] and the Vietnam News Agency [VNA] have signed an agreement for exchange of news. The agreement was signed today by the general manager of PTI and the director general of VNA. [Text] [BK021309 Delhi Domestic Service in English 1230 GMT 2 Mar 81]

CSO: 5500

STAFF SHORTAGES THREATEN TELECOM OPERATIONS

Brisbane THE COURIER-MAIL in English 6 Jan 81 p 3

[Text]

THE breakdown of telephone numbers beginning with 229 was only a fraction of the chaos which could occur, the Australian Telecommunications Employees' Association state secretary, Mr Ian McLean, said yesterday.

He said the telephone system was in a shocking state because of the lack of maintenance through staff shortages.

He said the breakdown of 229 numbers last month caused many wrong numbers for which subscribers were billed. This problem had lasted for about a day.

Telecom had offered to give rebates to people who had been billed for wrong numbers but some people would not seek refunds. Others who did not suffer from the malfunction would try to claim the rebate, Mr McLean said.

"Telecom must be condemned for not recruiting and training sufficient apprentices during a period of high youth unemployment," Mr McLean said.

The technicians knew how to improve the telephone system but there was insufficient trained staff to do the work.

"The situation will get worse because of government-imposed staff ceilings and the use of Telecom as a revenue source. The government should allow Telecom to provide the service for which it was established without undue interference," Mr McLean said.

He said that Telecom had become the main training ground in electronics and computers for the business world. People who had done their training in Telecom were "pirated" by private industry.

Mr McLean said that Telecom was fitting new exchange equipment into the telephone system, but he believed this could be done without the problems which were being experienced from the existing telephone exchanges.

CSO: 5500

TV SERVICE TO REMOTE AREAS GETS RENEWED CRITICISM

Perth THE WEST AUSTRALIAN in English 6 Jan 81 p 11

[Text] The limited television service to remote areas has again been criticised.

The honorary Minister for the North-West, Mr Ian Laurance, said yesterday that he had made urgent appeals to the Federal Government and the Australian Broadcasting Commission for a better service.

He said he had been "absolutely incensed" at the situation over the New Year weekend, particularly with the coverage--or lack of it--of major sporting events.

Mr Laurance, who spent the New Year holiday period at his home town of Carnarvon, said that when it came to television viewing it "was being on another planet."

"There was no cricket and no tennis," he said.

Mr Laurance said that the historic innings by Australian test cricket captain Greg Chappell against India was not seen by ABC viewers in the north of WA. There had been no highlights of the day's play in the evening news.

Duty

The ABC had a duty to fully serve people in areas not covered by commercial channels, he said.

There was no good reason why remote and isolated communities should get involved in the wrangle over who got rights for major sporting events. The matter was a purely urban argument.

Special arrangements should be made by the ABC to transmit major sporting events to remote areas whether or not it had the rights.

Commercial operators had offered the ABC coverage of major sporting events outside the commercial viewing range.

"People in these areas make a major contribution to the wealth of the nation and they deserve a better deal," Mr Laurance said.

CSO: 5500

NEW RELAY SYSTEM WILL IMPROVE SYDNEY TV RECEPTION

Sydney THE SYDNEY MORNING HERALD in English 14 Jan 81 p 1

[Text] More than 70,000 viewers in the inner-city and the Harbour foreshore suburbs will have better television reception by the end of the month.

The commercial television channels, ATN 7, TCN 9 and TEN 10, are testing a new relay tower in Kings Cross this week.

It is expected to come into operation in the next two weeks and will compensate for tall buildings and land forms which formerly blocked the channel's signals.

The relay system, topped with a 15-metre aerial on the Hyatt Kingsgate Hotel, cost the stations more than $400,000.

The unit will translate the VHF (very high frequency) signals from the stations' transmitters on the North Shore and at Ryde into UHF (ultra-high frequency) and redirect them into the areas with poor reception.

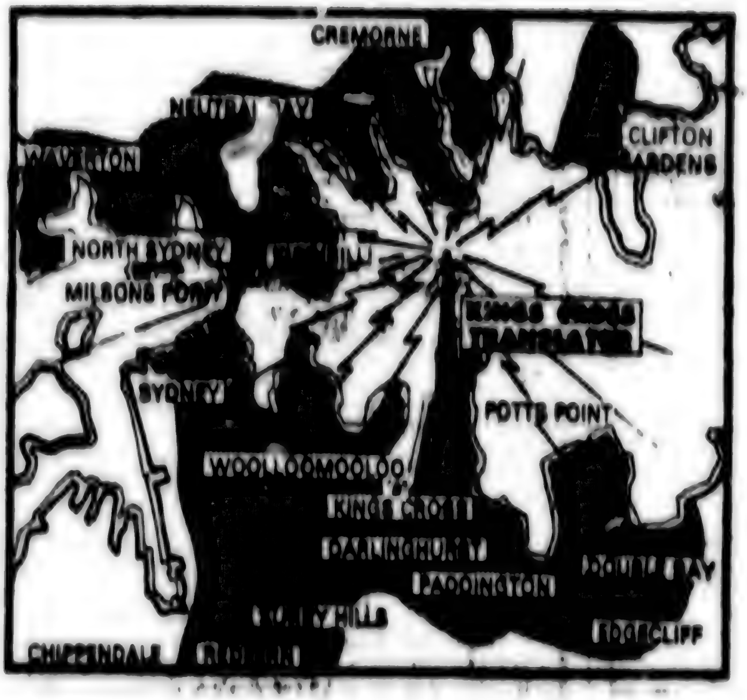
It will serve viewers in Edgecliff, Darlinghurst, Surry Hills, Darlington, Chippendale, East Sydney, Woolloomooloo, Kings Cross, Potts Point, Elizabeth Bay, Rushcutters Bay, Kirribilli and Milsons Point and parts of Double Bay, Darling Point, Paddington, the City, North Sydney, Waverton, Neutral Bay, Cremorne and Clifton Gardens.

New aerials or adjustments to television sets to allow them to pick up the UHF signal may cost from $30 to $200.

VHF broadcasts operate on a line-of-sight principle. If hindered by buildings or the local topography, signals cannot be picked up.

Another translator planned for North Head will improve reception around Middle Harbour and in the northern beachside suburbs, where reception sometimes is non-existent. It is expected to operate from the end of the year and improve reception of 23,000 more viewers.

A third translator, planned for the end of next financial year for the Collaroy area, will boost signals all along the peninsula and a fourth, in the Gosford-Wyong area, is expected to improve local reception of both Sydney and Newcastle stations.


CREMORNE
NEUTRAL BAY
WAVERTON
CLIFTON GARDENS
NORTH SYDNEY
MILSONS POINT
KINGS CROSS TRANSLATOR
SYDNEY
POTTS POINT
WOOLLOOMOOLOO
KINGS CROSS
DARLINGHURST
PADDINGTON
DOUBLE BAY
SURRY HILLS
EDGECLIFF
CHIPPENDALE
REDFERN

CSO: 5500

BRIEFS

COMBAT RADIO--Canberra: A new Australian-conceived and built combat radio system is expected to attract worldwide interest and open overseas markets in the next five years. The Raven single-channel radio system is a joint venture between the army and Australian industry. An army spokesman said yesterday that Project Raven was the biggest combat radio development in the post-war years. It was planned for service in 1985. "The army's current range of combat radios was bought mainly from the United States up to the Vietnam war," he said. [Text] [Perth THE WEST AUSTRALIAN in English 7 Jan 81 p 3]

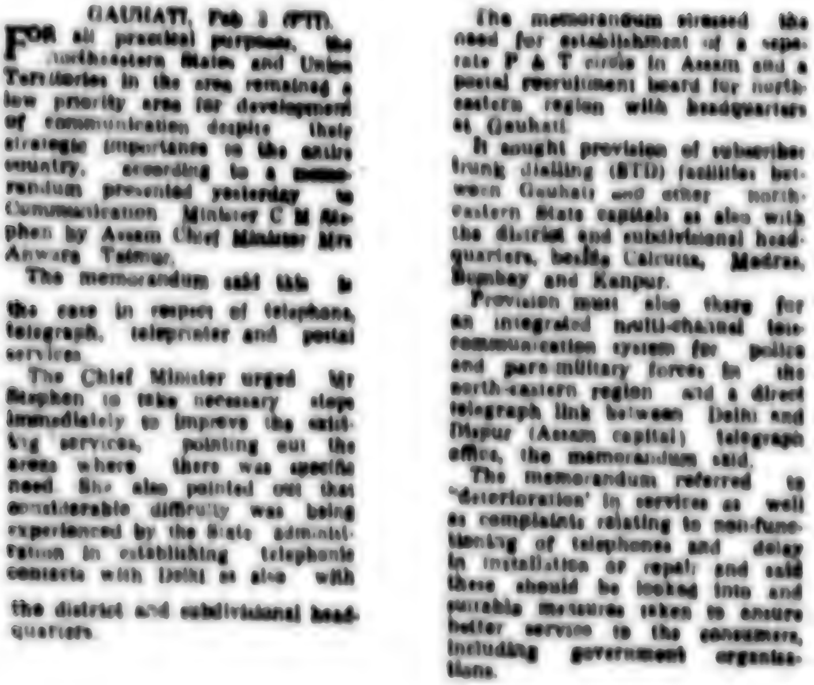
SATELLITE INVESTMENT TALKS--Canberra.--The Federal Government will begin talks today with the largest potential investors in Australia's domestic satellite system. When tenders for the ownership and management of the domestic communications satellite system closed more than 50 private organisations had expressed an interest. Initial discussions will be with companies which proposed at least a 2 1/2 per cent investment in the capital of the company, about $1 million. About one-quarter of the tendering firms are in this category. Although the 2 1/2 per cent is a minimum level, the Minister for Communications, Mr Sinclair, said yesterday that the Government would be looking into the possibility of some equity being set aside for small investors. [By Denis Shanahan] [Text] [Sydney THE SYDNEY MORNING HERALD in English 14 Jan 81 p 4]

CSO: 5500

ASSAM PRESENTS MEMO ON POOR COMMUNICATIONS

New Delhi PATRIOT in English 4 Feb 81 p 5

[Text]



GAUHATI, Feb 3 (PTI).

FOR all practical purposes, the northeastern States and Union Territories in the area remained a low priority area for development of communication despite their strategic importance to the entire country, according to a memorandum presented yesterday to Communication Minister C M Stephen by Assam Chief Minister Mrs Anwara Taimur.

The memorandum said this is the case in respect of telephone, telegraph, teleprinter and postal services.

The Chief Minister urged Mr Stephen to take necessary steps immediately to improve the existing services, pointing out the areas where there was specific need. She also pointed out that considerable difficulty was being experienced by the State administration in establishing telephonic contacts with Delhi as also with the district and subdivisional headquarters.

The memorandum stressed the need for establishment of a separate P & T circle in Assam and a postal recruitment board for north-eastern region with headquarters at Gauhati.

It sought provision of subscriber trunk dialling (STD) facilities between Gauhati and other north-eastern State capitals as also with the district and subdivisional headquarters, besides Calcutta, Madras, Bombay and Kanpur.

Provision must also there for an integrated multi-channel telecommunication system for police and para-military forces in the north-eastern region and a direct telegraph link between Delhi and Dispur (Assam capital) telegraph office, the memorandum said.

The memorandum referred to 'deterioration' in services as well as complaints relating to non-functioning of telephones and delay in installation or repair and said these should be looked into and suitable measures taken to ensure better service to the consumers, including government organisations.

CSO: 5500

INDIA

BRIEFS

TRUNK AUTOMATIC EXCHANGES--The Posts and Telegraphs Department has approved installation of two more Trunk Automatic Exchanges (TAX) in the southern region to bring more towns on the STD map of the country, reports UNI. At present there are eight TAX's in the region located at Madras, Bangalore, Coimbatore, Ernakulam, Trivandrum, Vijyawada, Hyderabad and Madurai. One more TAX at Salem with an initial capacity of 1000 lines and another at Trichirapalli with 2000 lines will be set up. These will enable towns in Tamilnadu -- Pollachi, Mettupalyam, Namakkal, Tiruchengode, Rasipuram, Attur, Bhavani, Kangayam, Dharapuram, Coonoor and Hosur to have STD facility. [Text] [New Delhi PATRIOT in English 5 Feb 81 p 5]

NORTHEAST TELECOM STATIONS--Gauhati, Feb 2 (PTI): Six satellite tele-communication stations are proposed to be set up in the northeastern region to improve the telecommunication system in the region, according to Union Communication Minister, C M Stephen. Mr Stephen said that it would be the endeavour of the P and T authorities to remove the communication bottleneck in the region so as to achieve the national integration. Mr Stephen who arrived here today on a 4-day visit to northeastern region was addressing the senior officials of the Posts and Telegraphs Department here. The Union Minister said "we are to establish the spirit of national integration and to carry the message of unity in diversity of the country", he added. [Text] [New Delhi PATRIOT in English 3 Feb 81 p 5]

ASSAM RADIO STATION--Gauhati, Feb. 5.--A radio station is proposed to be set up at Diphu, district headquarters of Karbi Anglong district of Assam, "very soon", reports PTI. The Akashvani authorities had conveyed their decision to the State Government, Mr Dhani Ram Rongpi, Minister for Transport and Hill Areas Development, said at a meeting of the officers of Karbi Anglong district held at Diphu recently. The State Government would have to provide a suitable site at Diphu for a permanent building for the proposed AIR station to be taken up during the Sixth Plan period. The station would, however, begin functioning immediately in a rented building, according to an official Press release. [Text] [Calcutta THE STATESMAN in English 6 Feb 81 p 7]

CSO: 5500

INDONESIA

BRIEFS

EARTH SATELLITE STATIONS CONSTRUCTION--According to the Maluku Province Telecommunications Office, eight small earth satellite stations are to be built in Maluku Province in 1981. They will be located in Tual and Saumlaki in southeast Maluku District, Namlea and Masohi in central Maluku District and Tobelo, Soa Siu, Sanana and Morotai in north Maluku District. The new stations are expected to be completed by the beginning of 1982. The province already has two big stations, one in Ternate and another in Ambon. [BK261610 Jakarta THE INDONESIA TIMES in English 16 Feb 81 p 3]

CSO: 5500

BRIEFS

SATELLITE TESTED--Tokyo Feb 27 KYODO--Transmission of newspaper data, facsimiles and photographs via the stationary communications test satellite "Sakura" was successfully completed Friday. With the success of the test, which started February 16, the nation's press is expected to enter a "space transmission age" in and after February 1983 when a full-scale communications satellite is launched. The test was conducted by the Posts and Telecommunications Ministry in cooperation with the Japan Newspaper Publishers and Editors Association and the Nippon Telegraph and Telephone Public Corporation. By using the "Sakura," which is on a stationary orbit about 36,000 kilometers above the equator, press data, facsimiles, photographs and voices were transmitted between KYODO news service's head officer here and the ministry's radio research laboratory's Kashima branch in Ibaraki Prefecture. Ministry officials said large type and photographs were reproduced very clearly but the clarity of smaller type was poor. The transmission of newspaper page facsimiles was also successful. The test was conducted by NIHON KEIZAI SHIMBUN'S Osaki office here, the laboratory's Kashima branch, and YOMIURI SHIMBUN'S head office here. [Text] [OW271317 Tokyo KYODO in English 1247 GMT 27 Feb 81]

SATELLITE OBSERVES SOLAR FLARE--Kagoshima Feb 28 KYODO--A scientific satellite, launched from a space and aeronautical science laboratory here, succeeded for the first time in observing a solar flare at 4:25 a.m. Friday, a spokesman for the Institute of Space and Aeronautical Science of the University of Tokyo said Saturday. The solar flare observed by the satellite "Hinotori" this time was a large-scale one which can occur only once in several years, the spokesman said. The explosive phenomenon is expected to bring about magnetic storms above the earth around Saturday and Sunday, which may cause jamming of communications, he said. The Hinotori will also try to catch the X; and gamma rays from the flare, and observe the process and place of the flare occurrence, he said. [Text] [OW281245 Tokyo KYODO in English 1205 GMT 28 Feb 81]

CSO: 5500

FISHERMEN USE SATELLITE-OPERATED WEATHER FACSIMILE MACHINE

Auckland THE NEW ZEALAND HERALD in English 15 Jan 81 p 2

[Text]

Herald Corres. Kaikohe

Fishermen working from the Mangonui Harbour in Northland are right up to the minute with weather forecasts.

Last year they banded together to buy a Furuno weather facsimile machine that is operated from a satellite.

The equipment cost $8000 and is smaller than a teleprinter.

A further $3000 bought a photo-copying machine so that individual fishermen could have their own copies of the regular weather map.

The equipment is housed at the Mangonui Sea Laboratory and Aquarium on the wharf.

Mr Dennis Shepherd, who looks after the aquarium for the Whangarei port fishermen, also monitors the weather machine.

At 8.30 pm a prognosis picture is automatically produced by stylus, followed at 3 pm and 4.30 pm by weather analyses.

Mr Shepherd pins a copy in the window while the telephone rings incessantly with requests for the latest weather information.

The fishermen decided to install the equipment after last year's two-man around the North Island yacht race was troubled by bad weather.

The fishermen had noted that American tuna boats working in the area had more accurate weather forecasts because of their satellite information.

"The Meteorological Service operates under some difficulties and the satellite is able to give us more local weather conditions," Mr Shepherd said.

"It means the boats can get to safe waters in plenty of time."

CSO: 5500

PEOPLE'S REPUBLIC OF CHINA

BRIEFS

POSTS-TELECOMMUNICATIONS CONFERENCE--According to RENMIN YOUDIAN BAO [PEOPLE'S POSTS AND TELECOMMUNICATIONS JOURNAL], the telecommunications bureau of the Ministry of Posts and Telecommunications recently called a telephone conference among the telecommunications departments at and above county level throughout the country. Speaking at the conference, minister of posts and telecommunications Wang Zigang stressed: It is necessary to improve telecommunications quality, eliminate telegraph errors and protect the (?interests) of the postal and telecommunications service. This telephone conference was called following the surfacing of problems in the telecommunications service since last year, in particular extremely serious mishaps experienced recently in the quality of telecommunications service. The Shaoyang Prefectural Bureau in Hunan, the Guangzhou Municipal Telecommunications Bureau and the Yingkou County Bureau in Liaoning made self-criticisms for serious mishaps in their telecommunications service quality in the form of delays and the destruction of telegrams. [Text] [OW010243 Beijing Domestic Service in Mandarin 2230 GMT 28 Feb 81]

SATELLITE PHOTOGRAPHY--The Wasteland Resources Survey Team under the Gansu Provincial Bureau of State Farms and Land Reclamation has for the first time surveyed the wasteland resources in the long "Hexi corridor." The "Hexi corridor," with mountains at its southern and northern ends and plains in its middle section, covers an area of 300,000 sq km. The area is suitable for agricultural development, but there are presently only some 10 million mu of cultivated land. The survey has discovered 5,589,000 mu of reclamable land and provided detailed information and data for the development of agriculture, forestry and animal husbandry in the area. The survey team was set up in April 1979. This multiple-branch scientific survey would take at least 5 years to complete if it were done in a conventional way. However, the team members displayed the spirit of fearing neither hardships nor death and endured severe cold of 20 or 30 degrees below [presumable centigrade] and extremely hot weather with temperatures as high as 40 degrees. They also worked more than 12 hours a day in the desolate and uninhabited Gobi Desert wilderness. They travelled a total of 45,000 km, applied advanced scientific and technological knowledge and used photographs taken from satellites in the wasteland survey. As a result, they shortened the completion time. Thus, it took them only 19 months to complete the survey. They wrote 15 survey reports, scientific reference materials and academic papers--a total of approximately 600,000 words. [Text] [OW011712 Beijing Domestic Service in Mandarin 1200 GMT 1 Mar 81]

CSO: 5500

MICROPROCESSORS INTRODUCED IN TELEPHONE EXCHANGE

Sofia RABOTNICHESKO DELO in Bulgarian 12 Jan 81 pp 1, 2

[Article by Lyuba Ignatova: "Microprocessors in Telephone Exchanges"]

[Text] While along with reconstruction and modernization a collective of engineers, technicians and workers at the Sofia Telephone and Telegraph Equipment Plant began production of automatic telephone exchanges of the ESK--Crosspoint type, the Institute for the Communications Industry developed a telephone exchange with new circuitry based upon microprocessor control. In the fourth quarter of 1980, a trial series was produced of a 400-post exchange with microprocessor control called the ESK M-400. Such "institute--plant" integration was successfully carried out. The creative cooperation between science and production has proven its advantages.

The ESK M-400 automatic telephone exchange with microprocessor control was awarded a gold medal at the International Plovdiv Fair last year. It will be produced on a line built for this purpose. The line will employ specialists with a semihigher and higher education. The final testing of the ESK M-400 will be carried out only by engineers. The plant collective has planned to produce 5,000 lines of this exchange in 1981. The first version of the M-400 system, of which the test series was manufactured, is designed for institutional exchanges up to 400 posts.

What are the new features of the automatic telephone exchange?

By its design, savings have been achieved in labor and material outlays and this meets the requirements raised by the National Party Conference. The modular design of the new exchange makes it possible to employ the equipment rationally with a varying schedule and functional capabilities, while control by the recorded program makes it easy to adapt to various signaling systems.

As a result of the introduction of electronic controls, one 400-post exchange of the M-400 system will realize 2-fold less consumption of metal than an analogous exchange of the Crosspoint system. The use of large integrated circuits in the control of the exchange makes it a modern installation for the use in telephone communications.

PHOTO CAPTION

1. p 2. The Telephone and Telegraph Equipment Plant in Sofia has completed testing on the new automatic telephone exchange the ESK M-400 which has received a gold medal at the 16th International Fair in Plovdiv. The new exchange has been developed at the Institute for Communications Equipment. It is two times smaller in size and is controlled by a microprocessor.

10272
CSO: 5500

BRIEFS

NEW STATION FOR EUROPEAN SATELLITE--Belgrade, 26 Feb (TANJUG)--A new Yugoslav earth station to operate via the European Communication Satellite (ECS) is to be constructed near the existing station in Ivanjica, Yugoslav constituent Republic of Serbia. The new station will be used for Yugoslavia's telephone and telegraph communications with European countries at distances of over 800 km. [Text] [LD271010 Belgrade TANJUG in English 1730 GMT 26 Feb 81]

CSO: 5500

COMMUNICATIONS SATELLITE FUNDING APPROVED, BIDS IN 1981

SEPLAN Approves Funding

Rio de Janeiro JORNAL DO BRASIL in Portuguese 11 Feb 81 p 9

[Text] SEPLAN [Planning Secretariat] yesterday approved the inclusion of the domestic satellite project in this year's budget for the Ministry of Communications. Minister Haroldo Correa de Mattos will now seek the final approval of the government from President Joao Figueiredo for the implementation of the project.

The project of the Brazilian domestic satellite was abandoned in 1977 during the administration of Minister Euclides Quandt de Oliveira and revived last year by Minister Haroldo Correa de Matoos, who created a special commission for that purpose. The justification for the revival of that project is that satellite communications in Brazil have been the means adopted to integrate places in the Amazon Region into the National Telecommunications System (SNT), using channels leased from Intelsat for that purpose.

Strategies

A study made by the Ministry of Communications ("Factors for the Introduction of a Satellite Communications System in Brazil"), evaluated by the Brazilian Space Activities Commission (COBAE) in May of last year, dealt with the principal strategic principles of the use of a communications satellite, emphasizing the following points:

Brazil already has the experience in satellite communications which will allow the realization of the project and the establishment of specifications for a domestic system, control and supervision of the space segment, as well as the installation testing and operation of earth stations.

The implementation of a domestic system, says the study, contains two solutions with respect to the space segment: a Brazilian segment or one leased from Intelsat. The comparison of advantages of the two solutions weighs heavily in favor of a Brazilian space segment in the medium and long terms. However, says the study, in view of the difficulties of the times and in view of the lesser expenditures for the leasing of some reserve Intelsat transponders for the initial traffic, it was decided to postpone the launching of our own satellite.

Application of the System

In its arguments for the use of our own satellite, the Ministry of Communications points out a number of points, among which are its application in public telecommunications and the interconnection of localities in the interior of the country not yet serviced by the SNT and the possibility of extending services to rural areas and to emerging development zones. It also points out that its utilization for direct reception of television would require a high transmission power from the satellite, which could make its use impractical, it being decided to use community reception in the first phase of its use.

Moreover, the armed forces have an interest in the use of transponders to be used exclusively for tactical purposes. Small earth stations are already being developed for that purpose.

Cost of the Project

The study shows that the implementation of a Brazilian space segment is self-supporting, which means that the systems obtain an economic balance from their operation independent from the subsidies from the rest of the SNT. The estimated costs in dollars of each space segment is $64 million, the cost of one main and one reserve satellite and their launching. The cost of the control and tracking center is estimated at $7 million. Those figures were obtained from the auction for bids held in 1976 and recently confirmly through consultations with manufacturers. If Brazil continues to lease Intelsat channels, it will spend nearly $107 million from 1985 to 1995 and the cost in 1985, $82 million, will be more to the cost of the project itself at that time.

Special Commission

The special commission emphasized in its report that the subsitution of a leased space segment (Intelsat channels) by our own satellite will be accomplished with resources of the communications sector itself, there being, therefore, no use of National Treasury resources. As a result, there would be no competition with other priority sectors in obtaining such resources.

1981 Bidding Possible

Rio de Janeiro JORNAL DO BRASIL in Portuguese 12 Feb 81 p 14

[Text] Brasilia--Minister of Communications Haroldo de Mattos asserted that the international auction for bids to install a domestic telecommunications satellite will be held this year. He added that the satellite will be in operation within 4 or 5 years if President Figueiredo approves the project.

The minister did not eliminate the possibility that other Latin American countries could share in the project when he said that Brazil is willing to study any proposal in this respect. Participation by another country would increase the number of channels used (estimated at 24,000), reducing operating costs.

Expenditures

The winning bid could be made by American, Japanese or French firms or by some government, if it made a proposal as a specific supplier of equipment, suggesting compensations for the trade balance or in financing.

In order for the domestic satellite to be launched in a geostationary orbit 36,000 kilometers from earth with a constant velocity remaining fixed with relation to earth, $64 million will have to be spent on the two satellites, the main and the reserve, and another $7 million spent on the control and tracking center.

The costs of the installation of the satellite, forecast at $160 million, were reduced because the earth stations to be installed where necessary will be manufactured with national money in the Campinas Training Center. Thus there will be no payments on foreign loans for 2 or 3 years, with financing foreseen for a period of 7 years.

"The domestic telecommunications satellite will cover the entire national territory and will be an alternate route for microwaves. It will also increase the installations of rural telephones and allow the extension of television to the interior," said Minister Haroldo de Mattos, adding that the levels of idleness of the electronic telecommunications industries will be reduced because some of them will be able to manufacture equipment for segments of the domestic satellite.

8908
CSO: 5500

BRAZIL

MINICOMPUTER COMPANY ENDS FISCAL YEAR WITH INCREASED SALES

Rio de Janeiro JORNAL DO BRASIL in Portuguese 6 Feb 81 p 16

[Text] Sao Paulo--Labo Electronica, which this month increases its capital from 150 million cruzeiros to 181.5 million cruzeiros, is going to end its 1980/1981 fiscal year in May with sales of 2.4 billion cruzeiros, compared to sales of 520 million cruzeiros during the 1979/1980 fiscal year.

Specializing in minicomputers, the company has been competing with four other manufacturers in a market which is growing at rates of up to 100 percent per year and which should stabilize at a growth rate of between 20 and 30 percent as of 1983.

Error in Evaluation

Labo Executive Vice President Carlos Augusto Caldas da Silva did not attribute the suppressed demand to the performance of the sector alone. Minicomputers are products basically destined for small and medium companies, many of which are of a family type, which also have the preconceived idea of replacing traditional systems of administration--such as the old accountant--with a machine.

"The great error of the industry was confusing potential demand with actual demand," he observed. Labo's secret for corralling a slice of the market of between 30 and 35 percent, according to him, was "to seek to have, not salesmen, but men capable of convincing the buyer of the advantages of the computer." Moreover, "our policy is to grow a lot, making a great effort, and not remain crying at the feet of the government," he said.

As of this month the countdown begins for the expiration of the technology agreement signed in 1977 with Nixdorf Computer of Germany. That countdown, explained sales director Rudolf Oehling, begins with the production of the 10th machine with a "Made in Brazil" plate, something which takes place this month. The contract signed with the Germans by Brazil, in keeping with the pattern established by the government, stipulates a payment of 3 percent on net sales of material introduced into Brazil. In other words, considering the final price to be 100, the payment to the Germans will be based on 30. [figures as published].

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JAMAICA

BRIEFS

ASIN BUREAU--Jamaica and Mexico have begun exploratory talks on the possibility of establishing a regional office of the Action for National Information Systems (ASIN) here. ASIN is a news agency involved in the exchange of information between Latin American, Caribbean and other Third World countries. Jamaica's Agency for Public Information (API) reported on January 9 that exploratory talks were held between the Hon. Ed Bartlett, Minister of State for Information and Culture here and Mexico's director general of Social Communication in the Ministry of Health and Welfare, Dr. Anibal Silva Aguilar. The API quoted Dr. Silva as saying that if an office of ASIN was established in Jamaica, it would be done on a government-to-government basis with Jamaica providing office facilities and staff, including journalists and a secretary, while the cost of transmission of news would be borne by Venezuela, a member of ASIN. In welcoming the talks, Mr. Bartlett told Dr. Silva that a decision would be taken shortly as to whether the office would be set up here. According to the API, Minister Bartlett said that he saw the need for improvement in the North-South flow of information. He said that the Jamaican government was committed to the free flow of information and considered it a duty and responsibility to aid that flow, and to give the world factual information. Dr. Silva said that the Minister's views were shared by the Mexican government and it was for that reason that Jamaica's participation was being sought, the API said. The Minister was afterwards presented with a gift of bronze coins by Dr. Silva. ASIN has its headquarters in Mexico. [Text] [Kingston THE DAILY GLEANER in English 20 Jan 81 p 5]

CSO: 5500

MINISTER ANNOUNCES EXPANSION OF TEHRAN TELEPHONE NETWORK

Tehran JOMHURI-YE ESLAMI in Persian 14 Jan 81 p 10

[Text] Yesterday morning Dr Mohammad Qandi, minister of post, telegraph and telephone, explained the operation and accomplishments of his ministry.

The minister of post, telegraph and telephone, in regard to completing and handing over 190,000 telephone numbers partially finished by the U.S. company GTE [or GTI] to customers, said: Progress has been made towards the start-up of the equipment of the aforementioned company through planning, study and efforts of ministry experts. In this connection, by the end of 1359 [20 March 1981] about 25,000 telephones will have been put into operation in Tehran through the electronic telephone exchange of the foreign company GTE. In several spots telephones will soon be given to applicants. In several city regions ministry experts cooperated in connecting several thousand partially electronic GTE telephones by installing and placing equipment of the aforesaid company into operation.

He said furthermore: We will strive to put communications and postal facilities at everyone's disposal. However, more attention will be given to deprived rural points and expansion of postal installation in Tehran will be halted. Concerning the activities of the Shiraz Iran-Nippon communications factories and the research center of the ministry of post, telephone and telegraph, Dr Qandi said: At the present moment these factories are responsible for producing central city telephone exchanges, radio and long-range links, and intercity and rural communications equipment. We are making efforts towards the self-sufficiency and strengthening of these factories.

Concerning postal communications, he said: In general more attention will be devoted to the villages. In order to have sufficient speed, we are considering putting a postal code system into effect in Tehran. Sufficient information for this plan's execution will be provided in the future.

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ANGOLA

BRIEFS

LUBANGO BROADCASTING STATION--A new 100-kw broadcasting station will be set up in the city of Lubango, covering the provinces of Mocamedes, Huila, Cunene and Kuando Kubango; this was announced by Adao Rodrigues (Malo), deputy chief of the department of political education, ideology, propaganda and information (DEPPI) of the MPLA-Labor Party Central Committee. Adao Rodrigues (Malo) stressed that investments in mass media infrastructures this year constitute an urgent preoccupation of party authorities and he stated that the new broadcasting station of the Angolan National Radio will make possible the widespread diffusion of the decisions of the party and government and more specifically, the implementation of the resolutions of the First Extraordinary Congress of the party and the education of the broad masses in the above provinces. It should be noted that the control of the activities of those organisms under DEPPI jurisdiction is also one of the objectives of the visit of Adao Rodrigues (Malo) to the southern provinces of the country, namely, Mocamedes, Huila, Cunene and Kuando Kubango. [Excerpt] [Luanda JORNAL DE ANGOLA in Portuguese 23 Jan 81 p 1]

CSO: 5500

BRIEFS

DOUALA RADIO STATION--Radio Douala has a traditional festival every year so that people will become acquainted with it. In existence since 1942, it has two 5-kw transmitters which permit broadcasting over medium wave a distance of about 50 km. At the end of this fiscal year, this station will have short wave transmitters as the other provincial stations do. Among special programs will be: informing the public about mosquito and rat problems, sports, discovery of certain artists, and a cultural evening. [Yaounde CAMEROON TRIBUNE in French 23 Jan 81 p 5]

CSO: 5500

DIRECT TELECOMMUNICATIONS LINK INDEPENDENT OF SA SOUGHT

Salisbury THE HERALD in English 17 Feb 81 p 3

[Text]

THE ***early establishment of a direct satellite telecommunications link with the outside world, independent of the present South African connection, was high on the list of Government priorities, Deputy Minister Dr Naomi Nhiwatiwa said this week.***

Such an independent link was not nearly as far off as many people might think, she said.

The former Deputy Minister of Roads, Posts and Telecommunications was speaking of her recent visit to the United States to study advanced communications techniques.

On her trip, Dr Nhiwatiwa, who is now Deputy Minister of Women's Affairs and Community Development, led a seven-member delegation as the guest of the Satellite Communications Division of the Harris Corporation of America.

They studied what American technology could offer Zimbabwe in the latest "communications via satellite" techniques, investigated financial arrangements for an earth station and training for local technicians.

The party flew to Melbourne, Florida, for a 10-day visit studying many aspects of satellite communications technology.

They were shown specialised equipment necessary for the running of the latest satellite communications systems.

The party met representatives of the Export-Import Bank of America to discuss funding a communications project which, once established, would draw a multi-million dollar revenue for Zimbabwe each year.

Dr Nhiwatiwa said: "It must be emphasised that this was a window shopping visit which does not imply that anything has been finalised. However I can say that the establishment of an earth station is high on the list of Government priorities.

"We have to be independent in our international communications both from a government viewpoint and from that of the many embassies which are now established in this country.

"It is totally unrealistic that Zimbabwe should have to channel all its international communications via South Africa, with the possible security leaks such a system could involve.

"I have realised from this most welcome visit to the Harris Corporation just how advanced American technology is, and while I realise that other nations can also offer very reliable communications systems, it was invaluable to me to see just what could be made available to Zimbabwe by America.

"We see the future as being most exciting, and in the fields of international communications we see the biggest hope for the full integration of Zimbabwe into the world community at all levels.

"Also, we believe that we have a moral duty to the masses of the people, especially those in the rural areas, to give them communication ability with the rest of the country and the rest of the world.

"It should also be possible to achieve this with a type of satellite system," Dr Nhiwatiwa said.

CSO: 5500

FEDERAL REPUBLIC OF GERMANY

CONTROVERSY OVER USE OF 100-104 MHz FREQUENCIES

Bonn RHEINISCHER MERKUR/CHRIST UND WELT in German 16 Jan 81 p 16

[Article by Franz Barsig: "Frequencies in Great Demand -- Media Policy With VHF Channels -- the Fight for Distribution of the 100-104 MHz Band"]

> [Text] The radio broadcasting stations want to use a new frequency range on which the Federal Government and the Laender disagree.

It is not a question of being technically overtaxed. The issue at stake is easy to understand. The VHF dials of older radio models show a scale extending to number 104. More recent radio models exhibit a scale extending to number 108. However, when dialing beyond the 100 frequency in selecting a station, one will usually not receive a station at all, with the exception of the WDR progams for guest workers broadcast on the 100-104 frequency band.

Why is the 100-104 frequency range hardly used here? Well, the reason is that in many European countries this VHF wave is still at the disposal of the so-called mobile radio services and, for the most part, blocked by the military. The 1979 Geneva WARC (World Administrative Radio Conference), however, decided that the 100-104 band, later also to include frequencies throughout 108, has to be gradually released for terrestrial broadcasting.

Formalistically seen, this frequency band is not permitted to be used for broadcasting purposes in Europe at the present time; only a Region 1 (Africa and Europe) distribution conference scheduled for 1983 will decide on who will be permitted to operate additional broadcasting stations on which frequencies.

In practice, the picture is slightly different, for there is every reason to believe that the 100-104 band will be available for broadcasting at an earlier date if the respective adjoining countries reach an agreement and the mobile radio services vacate the band before this date. In any case, information has been obtained to the effect that the German Federal Post Office has conducted a large number of bilateral negotiations and has encountered cooperation with the exception of the GDR, which has remained stubborn. This is why the fight for distribution of the 100-104 band will start as early as 1981, which takes us into the midst of the media-policy dispute.

The Bavarian Broadcasting Station (BR) is the most cunning of all stations: last summer it introduced Bayern 4, a purely classical music program. Its disadvantage, however, is that half of Bavaria's listeners cannot receive the program. The BR has already applied for 10 broadcasting locations in the new frequency band with the argument that it is offering culturally valuable programs. Other regional broadcasting stations of the Laender have followed suit with the argument that they should be allocated these frequencies exclusively in order to fill programing gaps and to make frequencies which have so far been monophonic suitable for stereo. The Deutschlandfunk (DLF) has a special status: It wants all of these new frequencies in order to be able to establish a VHF chain in the FRG. It is encountering objections by the regional broadcasting stations and by the minister presidents, who believe that VHF operation does not come under the statutory responsibilities of the DLF.

For a long time, the minister presidents themselves were not aware of the media-policy explosiveness of these VHF frequencies. They did not wake up until the Kronberg, Taunus conference from 12-14 November 1980, which adopted a unanimous resolution requesting the Federal Government to discuss and negotiate all plans regarding the use of the new frequency band with the Laender. Naturally, the Laender did not concur politically as to the use of the new band. Those Laender with an SPD government wish to utilize the new opportunities through broadcasting stations under public law. Those Laender with a CDU government, Lower Saxony's Minister President Ernst Albrecht, in particular, have entirely different plans. Under the new NDR state charter, the NDR will lose its monopoly of being the exclusive broadcasting station in the three Northern German Laender of Schleswig-Holstein, Hamburg and Lower Saxony as of 1 January 1983. The head of the Lower Saxony government sees this as a chance to involve newspaper publishers in broadcasting.

Broadcasting stations and studios, however, cannot be bought "off the rack." Once the frequency has been allocated, a minimum of 18 months are required to actually go the air. This is another reason why the fight for the use of the 100-104 band will begin very early. The first skirmish may already take place at the conference of the federal chancellor and the minister presidents which is scheduled for February.

The German Federal Post Office will have the hardest stand of all because it wishes to stay out of the arguments of media politics as long as possible. This will only be feasible, however, if the Federal Government and the coalition partners agree on a media policy concept. This problem was excluded from the negotiations on the government policy statement. It will become evident very quickly that this tactic of exclusion cannot be pursued much longer.

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FEDERAL REPUBLIC OF GERMANY

BRIEFS

FRG SATELLITE TELEVISION PARTICIPATION--Frankfurt, 25 Feb (DPA)--German newspapers are prepared in principle to participate in the development of a new European television company which is to broadcast by its own satellite programs in French, German and Dutch, probably from mid-1985. That is the outcome of a special delegate conference of the Federation of German Newspaper Publishers in Frankfurt on Wednesday (25 February). The initiative for a European satellite television company has come from Conpagnie Luxembourgeoise de Telediffusion (CLT), which has invited newspapers to participate. The German press is to have an influential say not only in the German program but also in the European project as a whole. The television broadcasts would take in large parts of France, the Federal Republic of Germany and the Benelux countries. In line with the target area, the program is to reflect the European spirit. [Text] [LD261623 Hamburg DPA in German 1559 GMT 25 Feb 81]

CSO: 5500

FORTHCOMING CHANGES IN TELECOMMUNICATIONS NETWORKS OUTLINED

Paris L'ECHO DES RECHERCHES in French May 1980 pp 59-68

[Article by Alain Roche, telecommunications engineer, head of the Department of Networks, Signals and Specifications (RLM-RSS), at the Lannion A CNET center [National Center for Telecommunications Studies]]

[Text] The scenario method is used here to explore the various hypotheses on the development of telecommunication networks. The two scenarios presented are oriented toward a digital, integrated services network by the year 2000. The first scenario --an audiomatic one--presupposes a progressive transformation of the present network and satisfies a very heavy demand for audio and data services, but a much more moderate change in animated picture services. The second scenario--videomatic one--is based upon the rapid establishment of a wide-band network designed to meet an explosive demand for all kinds of telematic [computer-based telecommunications system] services, particularly video services.

Introduction

An effort to predict the composition of any given network(s) in the year 2000 is a very risky exercise. On too many decisive points, we are unable to forecast coming developments with any great reliability.

A first unknown involves the way in which rivalry among competing technologies will develop. Thus, although it seems obvious that digital transmission and packet switching will experience an important development, it is more difficult to determine what application--if any--the more traditional techniques of analog transmission and circuit switching will retain. Conflicts of this kind are legion.

The nontechnical factors--which are as important if not more so--are even less well known to us. The same is true as regards the demand for services: which services will meet with success; what will be the means of distributing these services? Other factors have to do with the legal context within which activities linked to telecommunications, to the long-term policy followed for the organization of operational and maintenance services, etc. take place.

In all cases, it is one thing to conceptualize the structure of an ideal network tailored within a legal and technological context and for a given demand. It is another much more tricky thing to approach this ideal network by successive stages, with the present telecommunications network as the point of departure. As we shall see, the situation at departure and the initial choices will have a paramount influence on subsequent developments.

Before taking up the shapes the telecommunications network in the year 2000 may assume, it would be proper to spend a little time on the configuration of the network we know today, at the start of the 1980s.

The French Telecommunications Network at the Start of the 1980s

The present situation, slightly extrapolated, presents a network which offers an already quite extensive gamut of services--linked with voice and data transmissions --on a semi-integrated basis.

Putting it more precisely, a subscriber can have access to several services (videotex, facsimile, data transmission) through his own telephone line. However, he does not have the simultaneous use of these services; thus, he is unable to use a telephone terminal and a facsimile terminal at one and the same time. Furthermore, the quality of services accessible in this fashion is limited by the technical characteristics of the classical telephone:

--a band width of less than 4 kHz which imposes a limit (on the order of 4,800 b/s [bits per second]); on the bit rate of data transmission services.

--a several-second period as a minimum to establish communication and a call rejection rate (10 percent) which at times is prohibitive;

--procedures for placing calls complicated in certain instances because of the network's structure. That is why access to the most powerful services is accomplished via special lines.

The telecommunications network itself is broken down into several parallel and specialized subsystems on the basis of classes of service.

The most prevalent telephone network, from a quantitative standpoint, is still mainly analog.

In the urban area, the local network has a single switching level--most often of the analog type. In the rural and suburban areas, switching takes place at two levels and is often of the digital type. Therefore, the systems used are E10 or MT 25 in class 3, the hookup units for toll subscribers (URA) in class 4. In all cases, the hookup of subscribers is analog (use of voice frequencies on two wires); only a few digital PBX (private branch exchange users) are hooked up digitally on four wires with local digital zones. Therefore, the resulting outputs in bits in both directions are 2 Mb/s or 512 to 704 kb/s times four.

The relay network, with two switching levels, is heavily analog, with the introduction of long distance digital transmission and digital relay switches (E12, MT 20) being still rather recent. The result in the most general case is that a communication between two subscribers involves at least one analog trunk which, on the economic level, is quite a drawback for data transmission applications.

Each class of services has a particular network (telex network; Colisee network for private telephony; TRANSMIC network for the transmission of synchronous data and TRANSPAC for the block switching of data; etc.).

If we disregard the TRANSMIC-TRANSPAC Group, these networks are all analog and use relatively outdated switching systems. Their subscribers are hooked up to them directly by special connections. Such a connection consists of any distribution network pair branching off from a subscriber's hookswitch on the main distributing frame level. In digitized local areas, this connection is multiplexed on telephone links and passes through digital switches, with connections established in a semipermanent manner and not renewed at every call. Finally, let us note the launching of the TELECOM 1 satellite into orbit. The system is digital, time-shared with multiple access and can by itself constitute a specialized mini-network whose flexibility of adaptation enables it to have a great number of applications.

In summary, the telecommunications network at the start of the 1980s already offers a great range of services. The level of integration experienced by users is moderate. At the technical level, integration is limited to two-way transmission and distribution support capability. However, digital techniques--many already on-line--promise many greater possibilities of integration.

The Objective Network

The low level of integration in the present telecommunications network is in fact justified by the great preponderance of telephone service. However, this presents several disadvantages, which could become severe drawbacks when nontelephonic services become more widespread and more diversified:

--the cost of the service to the user is higher if he has to request hookup to a special line for each service;

--the user is annoyed by the diversity of the procedures he must follow to utilize services each of which is tied into a particular network;

--terminals of different kinds cannot communicate with one another (for example, graphic printer and facsimile terminals);

--the increase in networks over time is proving to be uneconomical for the government, which cannot realize economies of scale in its investments and must assure the management of a large number of disparate elements (layout, operation, maintenance).

Let us note, however, that today, thanks to the presence of certain integration factors, these disadvantages are not always encountered or are encountered occasionally in a moderate way. In addition to the examples cited above, the integration of data services is partially taken care of by the TRANSPAC network.

That is why, although we can well envision the present situation being projected into the future with a proliferation of networks specialized by classes of services, we will now turn to multiservice networks in the ensuing paragraphs.

The network which we set as the objective for the year 2000 will offer its users integration of services as follows:

--single-line hookup to the network, no matter what service is requested, and unification of the protocols for making a service request;

--single-party contact up to a certain level (commercial agency, maintenance services, billing).

Furthermore, a common characteristic of the networks which we are presenting is the use of subsystems offering data services uninterrupted digital communications.

The Scenario Method

If the network structures which we might expect to encounter in 2000 are numerous, the paths by which we will reach such structures are even more numerous. A transitional path is a series of stages, during which new investments bring about a change in the network structure and an improvement in its capacities. The problem of transition consists in minimizing the investments made at each stage, while ensuring the greatest flexibility for subsequent qualitative or quantitative development.

Among the many questions asked, let us pause for a moment and consider one of the most important at the start of the evolutionary process: how are we to establish a steady digital subsystem which will lower the cost of data transmissions? There are three possible solutions, the first two of which are developed in the following scenarios. The third, which is called internal interconnection, consists in establishing within the switched telephone network itself a digital subsystem making it possible to offer data services on the basis of 64 kb/s circuit switching. Even though we fail to devote much discussion in this article to that solution, for lack of space, it continues to be just as credible as the first two solutions.

We can see that in the future the network could develop in quite different directions.

To portray the choices which will present themselves to the planner, we will describe two contrasting development scenarios, which we will name audiomatic and videomatic. The reader should understand that what we have here are not efforts to predict the future but a technique of presentation within the context of which have been incorporated--by design--the maximum number of different elements. Of course, reality will be something else again; it could follow a certain scenario in simplified form or borrow elements from the two scenarios or even include elements which the author has not thought of! To make a long story short, the reader will certainly have understood that the year 2000 is a purely arbitrary date. As for the author, he will not hazard a guess as to the rapidity with which the described developments will come about.

The Audiomatic Scenario

In this scenario, the demand for new services, although clearly greater than today, is not explosive and increases progressively. The government is, therefore, induced to spread out its new investments as much as possible and to make the old networks profitable. Moreover, we suppose that the demand is coming from professional users and is, therefore, relatively concentrated geographically and early on directed toward applications of the data transmission kind. Therefore, the first task is the construction of a permanently digitized network to be able to offer these services at a low cost. The animated pictures services will not be introduced until a later stage.

First Stage

The metal wire distribution network is selectively digitized in relation to the demand for services. Thus we are able to offer bit rates on the order of 100 kb/s to individual subscribers. In urban areas, with a heavy concentration of multiservice subscribers, the subscribers are offered multiservice switching facilities, the capacity of which is several hundred lines. These switches separate the telephone traffic--which is relayed to the nearest subscriber telephone switch--from the traffic of the other services. These multiservice switches are also connected to centralized, multiservice nodal centers; e.g., at the regional level and interlinked to one another via the TRANSPAC network. To assure compatibility with existing services and interconnections with nontelephone and nonmultiservice subscribers, these new nodal centers are hooked up to former specialized networks. They take care of the necessary protocol conversions. In the local rural zones, the demand for multiservice subscriptions, which is clearly weaker, is met differently. The digital switches of the 1980 generation are improved, by the addition and/or replacement of components and can thus handle a small number of lines of multiservice digital subscribers.

In this way and in a very short time, a new multiservice network has been set up, of small size but covering the entire territory and permitting the satisfaction of all demands. What does such a network have to offer?

--In the first place, it offers the advantages of the integration of the abovementioned services: economies of scale and simplification of utilization procedures for the user, simultaneity of services and interconnections between different terminals;

--Furthermore, by replacing the former specialized networks, the network enables the government to simplify management of it (layout, operation, maintenance);

--Finally, advantage will be taken of the introduction of this network to improve the quality of existing data services and to introduce new services--tied in, for example, to message switching. The following stages will result in the new network's having a great increase in volume. Paralleling this, technical and functional unification will be accomplished progressively.

Second Stage

With a growing demand for multiservice, new lines are digitized. To make the carrier lines profitable, there is decentralization of multiservice subscriber switches at the subdistribution level.

Furthermore, the relay sector of the multiservice network should be enlarged to enable it to carry a greater amount of traffic. The multiservices nodes are decentralized at the metropolis level and multiservice transit centers make their appearance. At the same time, the block switches of the TRANSPAC network are replaced by a new more powerful generation. It will be noted that the multiservice network brings into play, according to the applications, both packet switching and circuit switching, either by means of specialized equipment or by means of equipment integrating the two switching modes. Finally, centers providing special services (data banks) are grafted to this network. At this stage, the former specialized networks have lost their subscribers through transfers to the multiservice network and have disappeared.

At the same time, the digitization of the telephone network continues in the transit sector.

Third Stage

The demand for multiservice subscriptions increases in the rural area and can no longer be met by digital switches of the 1980 generation. Thus, it is necessary to introduce, by directly decentralizing them, multiservice subscriber switches, with the telephone node (E10, MT 20) separating the telephone traffic from the other traffic.

In a parallel manner, the demand for new services--audio or data services--increases qualitatively. At this point we run into the bit rate limit of transmission systems on digital subscriber lines. This limit was due to the length of the transmission steps--which was reduced by decentralization of the multiservices subscriber switches--and to the decision made to set up bidirectional transmission systems on two wires. Rather than install new metal wires, this limit will be raised by effecting the two-line to four-line conversion as close as possible to the terminals. Thus multiplexers are introduced at the level of concentration points; i.e., on an average of 100 meters from the residence of the users.

Hypothetically, it will then be possible to offer bit rates ranging from 500 kb/s to 2 Mb/s and considerably improve the multiservice network from the qualitative standpoint.

Fourth Stage

Nevertheless, the bit rates offered by the multiservice network on pairs of metal wires does not permit the integration of animated picture services with satisfactory quality. That is why we must envisage the introduction of new wide-band support in the distribution sector; these will be fiber optics supplemented, for certain applications, by microwave. Thus, early on, there will be an introduction of services of the teledistribution and video library kind, compatible with quantitative weakness of the associated distribution network. Subscriptions to these new services are progressive; also, quite naturally, we are led to install a star optics distribution network, which will permit utilization of the existing infrastructure: buildings, cable conduits. What is more, the nature of the transmitted signals makes it necessary to use analog techniques and frequency multiplexing.

The new optics network is thus entirely different from the other networks with which it has no connection. Its subscribers retain their subscriptions to the multiservice or telephone networks for telephone or data applications.

The quantitative growth of multiservice transit and distribution networks coincides with the obsolescence of the space switches--electronic or crossbar switches. In local areas, the latter are replaced by multiservice nodes. This operation marks completion of voice-data integration.

Paralleling this, digitization of the telephone transit network is finished, which carries within it important functional potentials. These potentials will be utilized later on.

Fifth Stage

The optics distribution network is enlarged. It then becomes worthwhile to take up the final phase of services integration: voice-data-pictures. To do this, there will be added to the subscribers' lines a supplementary digital channel functionally equal to the channel carried by the digitized metal wire pairs. Wide-band subscriber switches are introduced in local zones; they are hooked up, on the one hand, to wide-band subscriber lines and to the three general networks, on the other hand; they relay traffic on the basis of its nature. The use of metal pairs of wire belonging to wide-band network subscribers can then be discontinued.

The telephone relay network, which is already fully digital, is brought up to the functional level of the multiservice network. To do this, there is on-site modification of relay centers, or they are replaced by new systems which integrate circuit and packet switching. At the same time, the initial multiservice network is also handling part of the telephone traffic. Two equivalent relay networks are thus usable to handle audio and data traffic. We can then expect the appearance of other relay networks--both general and specialized networks--among which the multiservice nodal center specifies a channel for every call.

The general video network is developed and animated pictures (videophony) switched services are opened. The video transit network is made up of relay switches and specialized centers (image banks). The evolution will continue subsequently through the introduction of total service integration nodes, replacing the former telephone or multiservice nodes.

The final network offers its users total integration of services. It, too, is oriented in the direction of heavy local zone integration, combined with a relative diversification in relays.

The Videomatic Scenario

This scenario corresponds to explosive demand, coming at the outset from nonprofessional users and oriented toward animated picture services. While seeking to spread out its investments over time, the government is giving up on making use of its old investments to the very end and is building a new network from scratch.

First Stage

To meet the needs expressed for picture and large bit rate computer data transmission, the government installs a new, entirely digital and wide-band network. In the local zone, the subscribers are hooked up by fiber optics loops which use packet switching and a distributed handling capability. These loops are particularly well adapted to the nature of the traffic, most of which is local. They do not use the distribution network conduits, which facilitates optimal grouping of users on the basis of the flow of traffic. These loops are interconnected by a satellite in stationary orbit, with one antenna being used by several loops. The hookup of a loop to an antenna utilizes the infrastructures (conduits) of the existing carrier and transmission networks.

The limited capacity of the carrier network set up in this way does not permit the inauguration of switched picture services. Furthermore, the users of the new network, if they wish, retain their subscriptions in the preexisting specialized networks, which offer services of a different kind.

Second Stage

Hookups to the new, wide-band network swell in number, which makes it necessary to increase the capacity of its relay sector. This is done through the use of ground supports which assure the large-capacity, packet interconnection of nodal switches. Switched video services can then be open to the public. Orbital satellites are used for the hookup of mobile or isolated subscribers and the backup of the ground network and international connections.

This phase also witnesses the decline in use of certain specialized networks, principally the public data networks, as all of its users are now hooked up with the new wide-band network.

Third Stage

The growth of the wide-band network has eliminated all the specialized networks and has absorbed the data traffic previously handled by the telephone network.

The new, wide-band network is enlarged. In local zones, it includes the nodal switches of subscribers and several levels of relay switching. Its transmission capacity and its high degree of meshing--and, therefore, the security it offers--will permit it during subsequent stages to progressively absorb the traffic and bring about the obsolescence of the telephone network.

Fourth Stage

In local zones with high hookup rates, the operation of subscriber telephone exchanges is eliminated. The corresponding video subscribers' switching system now covers all of the local zone; it is hooked up with the telephone relay network to permit the handling of the corresponding traffic.

Fifth Stage

The preceding operation is repeated in a large number of local zones. It then becomes possible to abruptly swing all of the telephone traffic into the wide-band multiservice network. In zones which have a low rate of video subscriptions, the local telephone network remains and is hooked up with the wide-band relay network.

With this one provisional exception, the old telephone network is abandoned.

The evolution is complete; the resulting network offers integrated services to its users. What is more, it is homogeneous in makeup. It is an example of an integrated services digital network.

Conclusion

The possibilities are quite numerous, and it is now up to technical feasibility studies and economic evaluations to quantitatively compare the potentialities of each method, in a way that will permit a determination of the most suitable strategy.

To conclude, let us note that our study has a very French bias. The situation may be different in other countries, on the basis of their geography, the history of their networks, their institutions, indeed--at the level of predominant services--their cultures. And even though we may conclude that the situation in European nations will not differ greatly from our own, that is not true for other countries, such as those of the Third World. These particular situations should be evaluated from the perspective of the world telecommunications market and also with respect to the effecting of international communications.

Acknowledgements

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AGENCY PLANS FOR INTERNAL BUSINESS SATELLITE COMMUNICATIONS

Oslo AFTENPOSTEN in Norwegian 21 Jan 81 p 25

[Article by Knut Løvstuhagen]

[Text] Televerket [government agency having administration of telegraph, telephone, radio, and broadcasting services] hopes that a number of Norwegian industrial enterprises will join it in an experiment to clarify to what extent communications satellites will cover the internal communications needs of the enterprises. Future European satellites will offer services such as telephone connections between main offices and geographically separated branch offices, high-rate data transmissions, video conferences to replace trips and documentary transfers in the form of electronic mail. The point of departure of Televerket is that the offer of such services must be ready in Norway at approximately the same time as communications satellites are being introduced in other European countries.

Torbjørn Knutsen, chief engineer in the traffic planning office of the Telecommunications Directorate, tells AFTENPOSTEN that inquiries are being made with industrial enterprises and other potential users of such satellite-based services with a view to testing some of the services offered through tests with the European test satellite OTS.

In order to be able to receive the transmissions from this satellite, South Norway will need antennas with a diameter of 5 meters, and, in the northern part of the country, antennas with a diameter of 8 meters will be needed. Since the antennas will cost approximately 2 million kroner, it seems most topical to have some kind of joint antenna system so that several enterprises can get together to buy one antenna.

The need of Norwegian trades and industries for satellite systems for internal communication purposes is still somewhat unclear. No market survey has as yet been carried through. But, in the rest of Europe, the telecommunications administrations are in full swing preparing such offers of services, perhaps more inspired by fears that the Americans, led by IBM, will enter the market and dominate it, than because of an actual need.

Some months ago, a satellite called SBS--Satellite Business System--was launched in the United States. Behind this satellite are IBM, the satellite company Comsat and the insurance company Aetna. The system will cover all of the 48 continental states with business communications. Especially the French are fearful that the Americans will launch a satellite which will also cover Europe and thus ruin the basis for what many believe will be a flourishing business for European telecommunications systems. The French will try to check such a development by launching the satellite Telecom 1 in 1983. The satellite will offer the same services as the SBS. At approximately the same time, the coordinating agency of the European telecommunication administrations in the area of satellites, Eutelsat, will be given access to corresponding services through the European satellite system ECS.

The satellite combination Telecom 1/ECS will cost 660 million kroner over a 7-year period. Our domestic Televerk has already secured for itself the transmission capacity in the satellites by subscribing for shares in the amount of 17 million kroner over the same period. For this amount, 2.5 percent of the capacity of the satellites will become available to Televerket.

In order for satellite communication for internal use to be interesting to industry and business, a larger communications need than usual is needed. For that reason, there are not, for the time being, very many potential users in Norway.

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CONFERENCE ON COMPUTERS IN TELECOMMUNICATIONS PLANNED

Oslo AFTENPOSTEN in Norwegian 5 Feb 81 p 34

[Article: "NSI Teledata Conference this Fall"]

[Text] The Norwegian Information Center (NSI) will hold the first telecommunications conference in this country at the Fur Center in Oslo 20-22 October, 1981. The conference is aimed at suppliers of information equipment, business, politicians, and educational institutions, the idea being to get a debate going on whether the new medium is to be introduced in Norway. An exposition, open to the public, will be arranged in connection with the conference.

Teledata is an information medium in which users, by means of the telephone and a television receiver, can obtain information from data banks and have them shown on the TV screen in their own homes (or in hotel rooms or offices.) Users must themselves seek the desired information, be it theater performances, airline departures, stock exchange news, or restaurant information. The conference planned by the NSI will be held at a time when the Telecommunications Administration and others interested are about to complete an experimental Teledata project. According to NSI Marketing Chief Odd Haugstveit the first conference day will be a Nordic Day, with presentation of the projects under way in Scandinavia. The second day will be devoted to what is happening internationally with, among other things, orientation on what is taking place in the United States and Europe. The last day will be a "Media Day," with presentation of an electronic newspaper, Teledata's relationship with the daily, weekly, and professional press, and the question of who is to control the information offered in this medium.

Haugstveit points out that it is up to the politicians to decide whether Teledata is to be offered in Norway. It is likely, however, that as early as next year some decisions must be made on Teledata's future in this country, and the Teledata-81 conference is intended to stimulate a public debate on all sides of this medium.

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NORWAY

TELECOMMUNICATIONS AGENCY'S TELEFAX COMPETES WITH INDUSTRY

Oslo AFTENPOSTEN in Norwegian 6 Feb 81 p 10

[Article by Knut Lovstuhagen: "Private Suppliers Lower Prices"]

[Text] The Telecommunications Administration has now for a little over a month been marketing its Telefax telecommunications system in competition with private producers of similar equipment. In the meantime, interesting things have happened.

According to reports received by the Telecommunications agency, private suppliers have their hands full demonstrating equipment to potential customers, and the private suppliers of such facsimile equipment have drastically reduced their prices.

"It is obvious that our appearence in the market has led to a strong pressure upon prices," says First Consultant Ivar Sliper of the Telecommunications Directorate to AFTENPOSTEN. "Prices which were once between 650 and 900 kroner per month, exclusive of the value added tax, are today down to about 550 kroner, value added tax included, for a manually operated facsimile apparatus. In addition, discounts are being given. The Telecommunications Administration is marketing two types of Telefax equipment. For the manually operated equipment a monthly rent of 590 kroner, value added tax included, is demanded, while the rent for automatic equipment is 900 kroner. In addition, there is an initial charge of 500 kroner.

It was in June of last year that the Storting [Parliament] decided that the Telecommunications Administration would introduce the Telefax service in competition with private suppliers. Originally, the Telecommunications Administration had wanted a monopoly arrangement. Telefax makes it possible to reproduce practically all kinds of documents, be they photographs, drawings, letters and other written material, over the telephone network. The service was introduced 1 January, and according to Sliper the response has been overwhelming.

"It is stimulating to provide a service in which we can compete with others," he says, adding that he believes the same principle will be applied to other future telecommunications services. Thus far the Telecommunications Administration has carried on a modest marketing campaign for Telefax. Later, the campaign will be expanded to include, among other things, advertisements in newspapers and trade journals. It is calculated that by the end of this year about 500 units will be rented out. Both telecommunications and the authorities assume that the service will be self-supporting.

Telefax is based on an international standard and can be used for facsimile reproduction in a number of Western European countries. For overseas use there is still a drawback in a shortage of catalogs showing who is equipped for the service.

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NORWAY

NEW MOBILE TELEPHONE INTRODUCED

Oslo AFTENPOSTEN in Norwegian 3 Feb 81 p 32

[Article: "New Mobile Telephone"]

[Text] A new mobile telephone adapted to the automatic mobile telephone system that is gradually being put into operation in the Nordic countries will be put on the market in the near future by Siemens A/S. The development has been carried out in collaboration between the Siemens companies in the Nordic countries, and production will take place in Oslo. All operating parts of the mobile telephone are contained in the transmitter-receiver instrument and can be operated with one hand. Up to 20 numbers can be programmed in advance, and the telephone has short-number selection. A number can be punched in beforehand and the time when the call shall go out can even be preselected. In case of a busy signal the number can be repeated by pressing a button. The number rung is shown in luminous digits. The price will be somewhat higher than the price of the equipment previously on the market.

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BRIEFS

SVALBARD--SEPARATE TELECOMMUNICATIONS DISTRICT--Svalbard, including Hopen and Bear Island, has acquired the status of a separate telecommunications district, on a par with the Telecommunications Board's other 27 telecommunications districts. In the future subscribers in Longyear City will be offered the same telecommunications services as those on the continent, a thing that has become possible with the establishment of a regular satellite connection via the ground station of Ice Fjord Radio. In a press release from the Telecommunications Directorate it is stated that the telephone net in Longyear City and connection with the long distance dialing net via satellite will be in service by summer. In that connection the Telecommunications Board means to increase the number of operating personnel servicing the state's installations attached to Svalbard Radio, Svalbard airport, and Ice Fjord Radio, both on the office side and on the technical side. [Text] [Oslo AFTENPOSTEN in Norwegian 29 Jan 81 p 15] 8815

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